

PTO/SB/08a (07-09)

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Substitute for form 1449/PTO			Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>			Application Number	10/580,746-Conf. #9342	
			Filing Date	May 26, 2006	
			First Named Inventor	Ingmar Hoerr	
			Art Unit	1636	
			Examiner Name	M. Marvich	
Sheet	1	of	11	Attorney Docket Number	22122-00006-US1

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA*	US-3,906,092	09-16-1975	Hilleman et al.	
	AB*	US-4,373,071	02-08-1983	Itakura	
	AC*	US-4,401,796	08-30-1983	Itakura	
	AD*	US-4,415,732	11-15-1983	Caruthers et al.	
	AE*	US-4,458,066	07-03-1984	Caruthers et al.	
	AF*	US-4,500,707	02-19-1985	Caruthers et al.	
	AG*	US-4,668,777	05-26-1987	Caruthers et al.	
	AH*	US-4,973,679	11-27-1990	Caruthers et al.	
	AI*	US-5,047,524	09-10-1991	Andrus et al.	
	AJ*	US-5,132,418	07-21-1992	Caruthers et al.	
	AK*	US-5,153,319	10-06-1992	Caruthers et al.	
	AL*	US-5,262,530	11-16-1993	Andrus et al.	
	AM*	US-5,580,859	12-03-1996	Felgner et al.	
	AN*	US-5,663,153	09-02-1997	Hutcherson et al.	
	AO*	US-5,700,642	12-23-1997	Monforte et al.	
	AP*	US-5,965,720	10-12-1999	Gryaznov et al.	
	AQ*	US-6,214,804-B1	04-10-2001	Felgner et al.	
	AR*	US-6,239,116-B1	05-29-2001	Krieg et al.	
	AS*	US-6,265,387-B1	07-24-2001	Wolff et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	†
		Country Code ² -Number-Kind Code ³ (if known)				
	BA	WO-93/14778-A1	08-05-1993	Vical Inc		
	BB	WO-97/41210-A1	11-06-1997	Univ Duke et al.		
	BC	WO-98/55495-A2	12-10-1998	Dynavax Tech Corp et al.		
	BD	WO-99/20774-A2	04-29-1999	Genzyme Transgenics Corp		
	BE	EP-1 083 232-A1	03-14-2001	Jung Guenther Prof Dr et al.		
	BF	WO-00/29561-A2	05-25-2000	Statens Seruminstitut et al.		

Examiner Signature	/Maria Marvich/	Date Considered	5/8/10
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		First Named Inventor	Ingmar Hoerr
		Art Unit	1636
		Examiner Name	M. Marvich
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		Attorney Docket Number	22122-00006-US1

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	AT*	US-6,322,967-B1	11-27-2001	Parkin	
	AU*	US-6,406,705-B1	06-18-2002	Davis et al.	
	AV*	US-20020132788-A1	09-19-2002	Lewis et al.	
	AW*	US-6,500,919-B1	12-31-2002	Adema et al.	
	AX*	US-6,514,948-B1	02-04-2003	Raz et al.	
	AY*	US-6,552,006-B2	04-22-2003	Raz et al.	
	AZ*	US-6,589,940-B1	07-08-2003	Raz et al.	
	AA1*	US-20030143204-A1	07-31-2003	Lewis et al.	
	AB1*	US-6,610,661-B1	08-26-2003	Carson et al.	
	AC1*	US-20030170273-A1	09-11-2003	O'Hagan et al.	
	AD1*	US-20030225016-A1	12-04-2003	Fearon et al.	
	AE1*	US-6,664,066-B2	12-16-2003	Parks	
	AF1*	US-20040005667-A1	01-08-2004	Ratti et al.	
	AG1*	US-20040106567-A1	06-03-2004	Hagstrom et al.	
	AH1*	US-20050250723-A1	11-10-2005	Hoerr et al.	
	AI1*	US-20050032730-A1	02-10-2005	Von Der Mulbe et al.	
	AJ1*	US-20050037494-A1	02-17-2005	Hecker et al.	
	AK1*	US-20050059624-A1	03-17-2005	Hoerr et al.	See BH
	AL1*	US-20050064596-A1	03-24-2005	Riemen et al.	

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	BG	WO-03/028656-A2	04-10-2003	Chiron Corp et al.	
	BH	WO-03/051401-A2	06-26-2003	Curevac GmbH et al.	See AK1
	BI	WO-03/059381-A2	07-24-2003	Curevac GmbH et al.	
	BJ	WO-03/066649-A1	08-14-2003	Biomira Inc et al.	
	BK	EP-1 393 745-A1	03-03-2004	Hybridon Inc	
	BL	WO-2004/058159-A2	07-15-2004	Dynavax Tech Corp et al.	

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			Examiner Name	M. Marvich	
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NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issu number(s), publisher, city and/or country where published.	T ²	
	CA	O'DOHERTY, U., et al., Human blood contains two subsets of dendritic cells, one immunologically mature and the other immature. <i>Immunology</i> 82 (1994), 487-493.		
	CB	TEUFEL, R., et al., Human peripheral blood mononuclear cells transfected with messenger RNA stimulate antigen-specific cytotoxic T-lymphocytes in vitro. <i>Cell. Mol. Life Sci.</i> 62 (2005), 1755-1762.		
	CC	ROMANI, N., et al., Generation of mature dendritic cells from human blood - An improved method with special regard to clinical applicability. <i>Journal of Immunological Methods</i> 196 (1996), 137-151.		
	CD	MORSE, M., et al., Generation of dendritic cells <i>in vitro</i> from peripheral blood mononuclear cells with granulocyte-macrophage-colony-stimulating factor, interleukin-4, and tumor necrosis factor- α for use in cancer immunotherapy. <i>Annals of Surgery</i> 225(1) (1997), 6-16.		
	CE	FEARNLEY, D.B., et al., Monitoring Human Blood Dendritic Cell Numbers in Normal Individuals and in Stem Cell Transplantation. <i>Blood</i> 93(2) (1999), 728-736.		
	CF	SIENA, S., et al., Expansion of Immunostimulatory Dendritic Cells from Peripheral Blood of Patients with Cancer. <i>The Oncologist</i> 2 (1997), 65-69.		
	CG	SALLUSTO, F., et al., Efficient Presentation of Soluble Antigen by Cultured Human Dendritic Cells is Maintained by Granulocyte/Macrophage Colony-stimulating Factor plus Interleukin 4 and Downregulated by Tumor Necrosis Factor α . <i>J. Exp. Med.</i> 179 (1994), 1109-1118.		
	CH	WEISSMAN, D., et al., Dendritic Cells Express and Use Multiple HIV Coreceptors. <i>Dendritic Cells in Fundamental and Clinical Immunology</i> , Ricciardi-Castagnoli (Ed.), Plenum Press, New York (1997), 401-406.		
	CI	HEISER, A., et al., Autologous dendritic cells transfected with prostate-specific antigen RNA stimulate CTL responses against metastatic prostate tumors. <i>The Journal of Clinical Investigation</i> 109(3) (2002), 409-417.		
	CJ	HEISER, A., et al., Human Dendritic Cells Transfected with RNA Encoding Prostate-Specific Antigen Stimulate Prostate-Specific CTL Responses in Vitro. <i>The Journal of Immunology</i> (2000), 5508-5514.		

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	CK	HOLMES, D., et al., Cell Positioning and Sorting using Dielectrophoresis. <i>European Cells and Materials</i> 4(Suppl. 2) (2002), 120-122.	
	CL	ZHANG, X. et al., Advances in Dendritic Cell-Based Vaccine of Cancer. <i>Cancer Biotherapy and Radiopharmaceuticals</i> 17(6) (2002), 601-619.	
	CM	SU, Z. et al., Enhanced Induction of Telomerase-specific CD4+ T Cells Using Dendritic Cells Transfected with RNA Encoding a Chimeric Gene Product. <i>Cancer Research</i> 62 (2002), 5041-5048.	
	CN	WEISSMAN, D., et al., HIV GAG mRNA Transfection of Dendritic Cells (DC) Delivers Encoded Antigen to MHC Class I and II Molecules, Causes DC Maturation, and Induces a Potent Human In Vitro Primary Immune Response. <i>The Journal of Immunology</i> 165 (2000), 4710-4717.	
	CO	HEISER, A., et al., Induction of Polyclonal Prostate Cancer-Specific CTL Using Dendritic Cells Transfected with Amplified Tumor RNA. <i>The Journal of Immunology</i> 166 (2001), 2953-2960.	
	CP	CONRY, R.M. et al., Characterization of a messenger RNA Polynucleotide Vaccine Vector. <i>Cancer Research</i> 55 (1995), 1397-1400.	
	CQ	HOERR, I., In vivo application of RNA leads to induction of specific cytotoxic T lymphocytes and antibodies. <i>Eur. J. Immunol.</i> 30 (2000), 1-7.	
	CR	BOCZKOWSKI, D., et al., Induction of Tumor Immunity and Cytotoxic T Lymphocyte Responses Using Dendritic Cells Transfected with Messenger RNA Amplified from Tumor Cells. <i>Cancer Research</i> 60 (2000), 1028-1034.	
	CS	DURET, L. et al., Expression pattern and, surprisingly, gene length shape codon usage in <i>Caenorhabditis</i> , <i>Drosophila</i> , and <i>Arabidopsis</i> . <i>Proc. Nat. Acad. Sci. USA</i> 96 (1999), 4482-4487.	
	CT	WU, L. et al., Fusion protein vectors to increase protein production and evaluate the immunogenicity of genetic vaccines. <i>Mol. Ther.</i> 2(3) (2000), 288-297. (ABSTRACT ONLY)	

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	CU	HAAS, J. et al., Codon usage limitation in the expression of HIV-1 envelope glycoprotein. <i>Current Biology</i> 6(3) (1996), 315-324.	
	CV	KOIDE, Y. et al., Review - Current Perspective - DNA Vaccines. <i>Jpn. J. Pharmacol.</i> 83 (2000), 167-174.	
	CW	NAGATA, T. et al., Codon Optimization Effect on Translational Efficiency of DNA Vaccine in Mammalian Cells: Analysis of Plasmid DNA encoding a CTL Epitope Derived from Microorganisms. <i>Biochemical and Biophysical Research Communications</i> 261 (1999), 445-451.	
	CX	KIM, C. et al., Codon optimization for high-level expression of human erythropoietin (EPO) in mammalian cells. <i>Gene</i> 199 (1997), 293-301.	
	CY	KOMAR, A.A. et al., Synonymous codon substitutions affect ribosome traffic and protein folding during in vitro translation. <i>FEBS Letters</i> 462 (1999), 387-391.	
	CZ	ROBINSON, F. et al., Expression of Human nPTB is Limited by Extreme Suboptimal Codon Content. <i>PLoS ONE</i> 3(3) (2008): e1801, doi: 10.1371/journal.pone.0001801.	
	CA1	PESOLE, G. et al., UTRdb and UTRsite: specialized databases of sequences and functional elements of 5' and 3' untranslated regions of eukaryotic mRNAs. Update 2002. <i>Nucleic Acids Research</i> 30(1) (2002), 335-340.	
	CB1	DUNHAM, S.P., The application of nucleic acid vaccines in veterinary medicine. <i>Research in Veterinary Science</i> 73 (2002), 9-16.	
	CC1	LEITNER, W.W. et al., DNA and RNA-based vaccines: principles, progress and prospects. <i>Vaccine</i> 18 (2000), 765-777.	
	CD1	LUO, D. et al., Synthetic DNA delivery system. <i>Nature Biotechnology</i> 18 (2000), 33-37.	
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	CE1	VERMA, I.M. et al., Gene therapy - promises, problems and prospects. <i>Nature</i> 389, 239-242.	
	CF1	EDELSTEIN, M.L. et al., Gene therapy clinical trials worldwide 1989-2004 - an overview. <i>J. Gene Med.</i> 6 (2004), 597-602.	
	CG1	PALU, G. et al., In pursuit of new developments for gene therapy of human diseases. <i>Journal of Biotechnology</i> 68 (1999), 1-13.	
	CH1	KUDIA, G. et al., High Guanine and Cytosine Content Increases mRNA Levels in Mammalian Cells. <i>PLoS Biol</i> 4(6) (2006): e180. DOI: 10.1371/journal.pbio.0040180.	
	CI1	WILUSZ, C.J. et al., Bringing the role of mRNA decay in the control of gene expression into focus. <i>TRENDS in Genetics</i> 20(10) (2004), 491-497.	
	CJ1	TOURRIERE, H. et al., mRNA degradation machines in eukaryotic cells. <i>Biochimie</i> 84 (2002), 821-837.	
	CK1	MITCHELL, P. et al., mRNA turnover. <i>Current Opinion in Cell Biology</i> 13 (2001), 320-325.	
	CL1	ROITT, BROSTOFF AND MALE. Immunology, 4th Edition. Barcelona: Times Mirror International Publishers Limited, 1996, page 1.7.	
	CM1	ROSS, J., Control of messenger RNA stability in higher eukaryotes. <i>Trends Genet.</i> 12(5):171-5, May 1996.	
	CN1	UEDA, T. et al., Phosphorothioate-containing RNAs show mRNA activity in the prokaryotic translation systems <i>in vitro</i> . <i>Nucleic Acids Research</i> 19(3) (1991), 547-552.	

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	CO1	TRINCHIERI, G. et al., Cooperation of Toll-like receptor signals in innate immune defence. <i>Nature Reviews/Immunology</i> 7 (2007), 179-190.	
	CP1	RAMAZEILLES, C. et al., Antisense phosphorothioate oligonucleotides: Selective killing of the intracellular parasite <i>Leishmania amazonensis</i> . <i>Proc. Natl. Acad. Sci. USA</i> 91 (1994), 7859-7863.	
	CQ1	DIEBOLD, S.S. et al., Innate Antiviral Responses by Means of TLR7-Mediated Recognition of Single-Stranded RNA. <i>Science</i> 303 (2004), 1529-1531.	
	CR1	HEMMLI, H. et al., A Toll-like receptor recognizes bacterial DNA. <i>Nature</i> 408 (2000), 740-745.	
	CS1	ZHOU, W.-Z. et al., RNA Melanoma Vaccine: Induction of Antitumor Immunity by Human Glycoprotein 100 mRNA Immunization. <i>Human Gene Therapy</i> 10 (1999), 2719-2724.	
	CT1	MATRAY, T.J. et al., Synthesis and properties of RNA analogs - oligoribonucleotide N3'→P5' phosphoramidates. <i>Nucleic Acids Research</i> 27(20) (1999), 3976-3985.	
	CU1	NICHOLSON, A. et al., Accurate <i>in vitro</i> cleavage by RNase III of phosphorothioate-substituted RNA processing signals in bacteriophage T7 early mRNA. <i>Nucleic Acids Research</i> 16(4) (1988), 1577-1591.	
	CV1	MINKS, M.A. et al., Structural Requirements of Double-stranded RNA for the Activation of 2',5'-Oligo(a) Polymerase and Protein Kinase of Interferon-treated HeLa Cells. <i>The Journal of Biological Chemistry</i> 254(20) (1979), 10180-10183.	
	CW1	JANSSENS, S. et al., Role of Toll-Like Receptors in Pathogen Recognition. <i>Clinical Microbiology Reviews</i> 16(4) (2003), 637-646.	
	CX1	GRANSTEIN, R.D. et al., Induction of Anti-Tumor Immunity with Epidermal Cells Pulsed with Tumor-Derived RNA or Intradermal Administration of RNA. <i>J. Invest. Dermatol.</i> 114 (2000), 632-636.	

Examiner Signature	/Maria Marvich/	Date Considered	5/8/10
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Application Number	10/580,746-Conf. #9342	
			Filing Date	May 26, 2006	
			First Named Inventor	Ingmar Hoerr	
			Art Unit	1636	
			Examiner Name	M. Marvich	
Sheet	9	of	11	Attorney Docket Number	22122-00006-US1

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
	CY1	SAENZ-BADILLOS, J. et al., RNA as a tumor vaccine: a review of the literature. <i>Exp. Dermatol.</i> 10 (2001), 143-154.		
	CZ1	LOGING, W.T. et al., Identifying Potential Tumor Markers and Antigens by Database Mining and Rapid Expression Screening. <i>Genome Research</i> 10 (2000), 1393-1402.		
	CA2	WEIDE, B. et al., Results of the first phase I/II clinical vaccination trial with direct injection of mRNA. <i>J. Immunother.</i> 31 (2) (2008), 180-188. (Abstract only)		
	CB2	SU, Z. et al., Immunological and Clinical Responses in Metastatic Renal Cancer Patients Vaccinated with Tumor RNA-transfected Dendritic Cells. <i>Cancer Research</i> 63 (2003), 2127-2133.		
	CC2	WEIDE, B. et al., Results of the First Phase 1/2 of Clinical Vaccination Trial with Direct Injection of mRNA. <i>J. Immunother.</i> 00 (00), 1-9. 2007		
	CD2	CARRALOT, J-P. et al., Production and characterization of amplified tumor-derived cRNA libraries to be used as vaccines against metastatic melanomas. <i>Genetic Vaccines and Therapy</i> 3 (2005), 6.		
	CE2	LENZ, A. et al., Human and Murine Dermis Contain Dendritic Cells. <i>J. Clin. Invest.</i> 92 (1993), 2587-2596.		
	CF2	ROSENBERG, S.A. et al., Cancer immunotherapy: moving beyond current vaccines. <i>Nat Med.</i> 10 (9) (2004), 909-915.		
	CG2	HOATH, S.B. et al., The Organization of Human Epidermis: Functional Epidermal Units and Phi Proportionality. <i>J. Invest. Dermatol.</i> 121 (2003), 1440-1446.		
	CH2	MEUNIER, L. et al., Heterogeneous Populations of Class II MHC+ Cells in Human Dermal Cell Suspensions. <i>The Journal of Immunology</i> 151 (8) (1993), 4067-4080.		

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		First Named Inventor	Ingmar Hoerr		
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		Examiner Name	M. Marvich		
Sheet	10	of	11	Attorney Docket Number	22122-00006-US1

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	CI2	MATHERS, A.R. et al., Professional Antigen-Presenting Cells of the Skin. <i>Immunologic Research</i> 36/1-3 (2006), 127-136.		
	CJ2	PALUCKA, A.K. et al., Taming cancer by inducing immunity via dendritic cells. <i>Immunological Reviews</i> 220 (2007), 129-150.		
	CK2	LARREGINA, A.T. et al., Changing Paradigms in Cutaneous Immunology: Adapting with Dendritic Cells. <i>The Journal of Investigative Dermatology</i> 124 (2005), 1-12.		
	CL2	KARIKO, K. et al., Suppression of RNA Recognition by Toll-like Receptors: The Impact of Nucleoside Modification and the Evolutionary Origin of RNA. <i>Immunity</i> 23 (2005), 165-175.		
	CM2	KANDIMALLA, E.R. et al., Divergent synthetic nucleotide motif recognition pattern: design and development of potent immunomodulatory oligodeoxyribonucleotide agents with distinct cytokine induction profiles. <i>Nucleic Acids Research</i> 31(9) (2003), 2393-2400.		
	CN2	KANDIMALLA, E.R. et al., Immunomodulatory oligonucleotides containing a cytosine-phosphate-2'-deoxy-7-deazaguanosine motif as potent Toll-like receptor 9 agonists. <i>PNAS</i> 102(19) (2005), 6925-6930.		
	CO2	LEE, J. et al., Molecular basis for the immunostimulatory activity of guanine nucleoside analogs: Activation of Toll-like receptor 7. <i>PNAS</i> 100(11) (2003), 6646-6651.		
	CP2	AURUP, H. et al., Translation of 2'-modified mRNA in vitro and in vivo. <i>Nucleic Acids Research</i> 22(23) (1994), 4963-4968.		
	CQ2	DISBROW, G.L., Codon optimization of the HPV-16 E5 gene enhances protein expression. <i>Virology</i> 311 (2003), 105-114.		
	CR2	SOUSA, R., Use of T7 RNA Polymerase and Its Mutants for Incorporation of Nucleoside Analogs into RNA. <i>Methods in Enzymology</i> 317 (2000), 65-74.		
Examiner Signature	/Maria Marvich/		Date Considered	5/8/10

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	CS2	GAO, X. et al., "Nonviral gene delivery: what we know and what is next." <i>AAPS J</i> 9(1): E92-E104 (2007).	
	CT2	HERWEIJER, H. et al., "Gene therapy progress and prospects: Hydrodynamic gene delivery." <i>Gene Ther.</i> 14(2): 99-107 (2007).	
	CU2	SUDA, T. et al., "Hydrodynamic gene delivery: its principles and applications." <i>Mol. Ther.</i> 15(12): 2063-2069 (2007).	
	CV2	VERMA, I.M. et al., "Gene therapy: twenty-first century medicine." <i>Annu. Rev. Biochem.</i> 74: 711-738 (2005).	
	CW2	WOLFF, J.A. et al., "Direct gene transfer into mouse muscle in vivo." <i>Science</i> 247(4949 Pt. 1): 1465-1468 (1990).	

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